

CLAIM

1. A cooling system used in a hybrid system which includes an internal combustion engine, a drive mechanism including a motor, and a drive circuit for driving the motor, comprising:

5 a first cooling system which includes a first cooling device for cooling a cooling medium, and in which the cooling medium that has been cooled by the first cooling device is delivered to the drive mechanism, and then to the internal combustion engine, and is returned to the first cooling device so that the drive mechanism and the 10 internal combustion engine are cooled; and

15 a second cooling system which includes a second cooling device for cooling the cooling medium, and in which part of the cooling medium delivered from the first cooling device is cooled by the second cooling device, and the cooling medium cooled by the second cooling device is returned to the first cooling system through the drive circuit so that the drive circuit is cooled.

2. The cooling system according to claim 1, wherein in the second cooling system, after the cooling medium cools the drive circuit, the cooling medium is returned to a portion downstream of the drive mechanism in the first cooling system.

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3. The cooling system according to claim 1 or 2, wherein the second cooling system further includes flow rate adjusting means for adjusting a flow rate of the cooling medium.

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4. The cooling system according to any one of claims 1 to 3, wherein the internal combustion engine includes plural operation systems each of which includes at least one cylinder, and each of the plural operation systems can be separately operated; and in the first cooling system, a flow of the cooling medium is split such that the cooling medium is separately delivered to each of the plural operation systems of the internal combustion

engine, and each of the plural operation systems is separately cooled.

5. The cooling system according to claim 4, wherein the first cooling system further includes plural pressure-delivery means each of which delivers, under pressure, 5 the cooling medium to a corresponding operation system among the plural operation systems.

6. The cooling system according to claim 5, wherein the first cooling system further includes pressure-delivery control means for controlling driving of the plural 10 pressure-delivery means based on an operating state of the internal combustion engine.

7. The cooling system according to claim 6, wherein the pressure-delivery control means controls driving of the plural pressure-delivery means such that the cooling medium is delivered under pressure only to an operation system that is being operated 15 among the plural operation systems.

8. The cooling system according to claim 6 or 7, wherein in a case where at least one of the plural operation systems is being operated, and an operation system that has not been operated starts to be operated, the pressure-delivery control means controls 20 driving of the pressure-delivery means for delivering, under pressure, the cooling medium to the operation system that will start to be operated such that the cooling medium flows back to the operation system that will start to be operated for a predetermined time period before the operation system starts to be operated.

25 9. The cooling system according to any one of claims 4 to 8, wherein the first cooling device can separately cool the cooling medium that has been delivered from each of the plural operation systems of the internal combustion engine.

10. The cooling system according to claim 9, wherein the first cooling device

includes an inlet portion which separately receives the cooling medium that has been delivered from each of the plural operation systems of the internal combustion engine; a cooling portion which separately cools the cooling medium that has been delivered from each of the plural operation systems; and an outlet portion from which the cooling medium that has been delivered from each of the plural operation systems and has been separately cooled is discharged.

11. The cooling system according to any one of claims 1 to 10, wherein the first cooling device and the second cooling device cool the cooling medium using heat exchange with outside air.

12. The cooling system according to any one of claims 1 to 11, wherein the hybrid system is a hybrid vehicle which can run using power supplied from the internal combustion engine and power supplied from the motor, and each of the first cooling device and the second cooling device includes a radiator.